APRIL/MAY 2023

DMA41 — COMPLEX ANALYSIS - II

Time : Three hours Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL questions.

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1. Define residue.

2. Define pole.

3. Give the example of estimation of sums.

4. Define singular integral.

5. Give the example of analytic function.

6. What is direct analytic continuation?

7. Define meromorphic function.

8. Define Zeta function.

9. State open mapping theorem.

10. Write Bieberbach conjecture.

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SECTION B — (5 × 5 = 25 marks)

Answer ALL questions.

11. (a) State and prove residue theorem.

Or

(b) Discuss about residue at the point at infinity.

12. (a) Describe the singularities on the real axis.

Or

(b) Discuss the three types of integral.

13. (a) Derive Poisson integral formula.

Or

(b) Describe an analytic continuation via reflection.

14. (a) How to factorization of entire function?

Or

(b) Derive the gamma function.

15. (a) State and prove Picard's theorem.

Or

(b) State and prove Hurwitz theorem.

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. State and prove Rouche's theorem.

17. Write about integral involving Banach points.

18. State and prove Monodromy theorem.

19. Derive Jensen's formula.

20. State and prove Riemann mapping theorem.
